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AUTHOR Jaquette, Daniel S.
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ABSTRACT

This study employs a time-series analysis of naturalistic developmental functioning to describe characteristics of transition in social development. A special education classroom of eight preadolescents, ages 11 and 12, provided subjects for this study. Transitional patterns in social cognitive development were studied in children's problem-solving discussions during the course of regularly scheduled classroom meetings over an eight-month period. Individual responses in the group discussion were transcribed and assigned a level of interpersonal awareness, using reflective interview stage criteria for coding social cognition from group discussions. Children's interpersonal awareness was assessed in interviews and compared to performance in the classroom setting. Among the findings, natural setting outcomes were lower than interview outcomes. For all subjects, a pattern of growth in group functioning was observed for the first two-thirds of the class meetings. Growth was followed by a termination-regression effect. Children appear to progress on two developmental planes, one of formal competency and another of functional performance. The procedures described are presented as a model for the microgenetic analysis of short-term development. It is suggested that they also may provide a clinical tool for analyzing the social adjustment problems of disturbed children. (Author/RH)

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A Time-Series Analysis of Transition in Social-Cognitive Development

Daniel S. Jaquette

Harvard University

Laboratory of Human Development
Larsen Hall
Cambridge, Massachusetts

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Introduction and Background

Developmental psychology is largely concerned with describing change over time, what Wohlwill (1970, 1973) calls the "developmental function." One of the major contributions of the cognitive developmental approach to socialization (Damon, 1977; Fowler, 1976; Furth, 1977; Kohlberg, 1969; Piaget, 1965; Selman, 1976; Turiel, 1966) is the analysis of stable patterns of change in social thought variously referred to as "levels" or "stages." Underlying this approach is the assumption that no conceptual or behavioral structure can be treated as an isolated event. Any state is the product of a succession of changes, so that describing the process of change becomes essential in understanding both the form and function of social development.

While researchers in social development share this basic belief in the need to study the change process, I do not think we have been creative enough in developing methods for studying it. This is especially the case for critical periods of transition from one level of organization to another. The goal of our research has been to develop methods for studying transitional patterns in social cognitive development. Our approach is to monitor social cognitive functioning within a natural environment using multiple observations within a relatively short time span. A time-series design is used to represent the pattern of transition, with scattergram and curve fitting techniques helping to characterize the change profile. The characteristics of the change profile, whether it is slowly progressing, progressing through a series of qualitative steps, oscillating, or even temporarily regressing, provides the researcher with valuable insights into the process of transition in social development.

A time-series design for observing developmental transition departs from current methods for assessing change. But then let's look at the three current approaches: (1) cross-sectional sampling of children at various ages, (2) long-term,

longitudinal assessment at one-, two- or three-year intervals, and (3) the summary evaluation of short-term change through a pre-test/post-test design.

The cross-sectional approximation of developmental change (Damon, 1977; Kohlberg, 1969; Selman, 1976) rests on the assumption that children assessed at various ages can be combined to provide one picture of development. As a first sortie in developmental milestones, a cross-sectional approach is both cost and time efficient. However, its problems are well recognized, and, unfortunately, endemic to the design. Until some longitudinal sampling is conducted, one can never be sure what "basic cognitive-developmental differences" may turn out to be cohort effects (Wohlwill, 1970). A second problem is that the design requires an analysis of group differences when one really wants to know how individuals progress (Porges, 1976).

The long-term, intermittent, longitudinal approach is most useful when combined with cross-sectional sampling (Holstein, 1976; Kohlberg & Kramer, 1969; Kuhn, 1976; Selman & Jaquette, forthcoming). While it is both expensive and time-consuming, the longitudinal approach can help weed out cohort effects, and can provide the researcher with a fairly accurate map of broad developmental changes during the child's socialization. The problem with this method as it is currently practiced concerns the frequency of assessment. When growing children are assessed as infrequently as once every one, two, or three years, most of the more subtle qualities of the change process are lost between testing sessions (Inhelder, Sinclair, & Bovet, 1974). It would be as if weathermen forecasted the weather by sampling the temperatures from one day in the months of March, April, May and June. It would be likely that the temperatures of those four days would result in a "growth curve" characteristic of what social cognitive "stage" theorists call "invariant progression" (Kohlberg, 1969). It would also be an inadequate approximation of the oscillating, progressive and regressive patterns observed when the temperature is recorded on a daily basis.

A third approach which attempts to capture the micro-genetic features of developmental transition has been the short-term training study (Blatt & Kohlberg, 1975; Bandura & McDonald, 1963; Brainerd, 1973; Brainerd & Allen, 1971; Strauss, 1976; Turiel, 1966). In this approach some stimulus is seen to induce change or development. Control and experimental groups are randomly selected, and pre-test/post-test change scores are analyzed to determine the effects of the stimulus on developmental change. The problem is that this design only confirms or disconfirms whether change has taken place. It provides no information on the nature of developmental progression (Cooney, 1977; Kuhn & Angelev, 1976). For example, even if change is observed, it is impossible to know whether it was gradual or occurred during one short spurt of growth.

In general, one is left with the impression that the current methods for assessing change are the "snap-shot" variety. The snap shots may be of different people, the same person at infrequent intervals, or the same person "before and after." To describe the characteristics of transition, and, thus, the very essence of developmental change, we need a motion-picture technique capable of capturing development as a daily activity in the child's life. One reason that the "snap-shot" technique still pervades research on social cognitive development is the reliance on interviews (Damon, 1977; Fowler, 1976; Furth, 1977; Kohlberg, 1969; Selman, 1976, Turiel, 1974) and more psychometrically sound tests (Rest, 1974). Both assessment techniques have two serious limitations. First, due to problems of instrument reactivity, such a formal assessment limits the number of times per year a child may be measured. A technique which rules out multiple assessments over short time periods rules out the analysis of transition (Holtzman, 1963; Porges, 1976). Second, critics have long argued that clinical interviews and tests of social development are extraneous to the conditions under which children normally function in their social world. Neither interviews nor tests match the naturalistic context (e.g., peer groups) or real-life content (e.g., a child's own social conflicts) of children's daily social development (Brown & Hernstein, 1975;

Given the limitations of existing methods for observing developmental transition, a time-series analysis of multiple naturalistic observations over critical periods may be the best approach. A time-series design involves successive observations of one or more variables on the same individual or group over time. (Baltes, Reese, & Nesselroade, 1977; Campbell & Stanley, 1963; Gottman & McFall, 1972: Gottman, McFall, & Barnett, 1969; Porges, 1976). Multiple observations are required, usually more than twenty, to define the developmental function over time. The clearest methodological benefit is the facility with which group or individual growth curves can be generated. These growth curves represent a continuous, descriptive record of fluctuation in the developmental variable during a transitional period. The record of transitional functioning, whether it is progressive, oscillating, regressive, or curvilinear, offers the researcher the clearest picture of the micro-genetic process. For determining the universality of transitional patterns, the design allows one to present individual time-series profiles which do not blur change characteristics by grouping the data (Chassan, 1965; Chassan & Bellack, 1965; Gottman, 1973).

Analyses of time-series data are complicated by the fact that repeated observations on the same individuals violate assumptions of independence underlying many conventional statistical technqiues (Baltes, Reese, & Nesselroade, 1977; Gottman, McFall, & Barnett, 1969; Porges, 1976). Some sophisticated statistical packages employ time series of more than one hundred observations of highly reliable behavioral or physiological change. Given the present status of developmental variables, the number of potential observations, and the formative research goals, our time-series analyses of social developmental transition use scattergram and curve fitting techniques. Standard deviation scores also provide the researcher one index of the degree of variance or stage oscillation during transition periods.

Method

Transitional patterns in social cognitive development were studied through repeated observations of interpersonal awareness levels (Jaquette, 1976a, 1976b; Selman, 1976; Selman & Jaquette, 1977, forthcoming) during the course of 32 group problem-solving discussions over an 8-month period (Jaquette, 1978). Interpersonal awareness levels (see Tables 1 and 2) represent a social cognitive stage analysis parallelling Kohlberg's moral judgment stages (Kohlberg, 1969) and Selman's perspective-taking levels (Selman, 1971). Interpersonal awareness deals with the child's understanding of individuals and the psychological interdependence of human relations. Our emphasis has been on the child's understanding of the peer world, particularly friendship and peer group relations. While the levels have been refined through analyses of reflective interviews, observation indicates that children spontaneously use the same concepts in resolving their real-life interpersonal difficulties (e.g., teasing or sharing) in naturalistic settings. To assess transitional patterns in children's developing interpersonal awareness it was possible to observe naturalistic group problem-solving discussions during the course of regularly scheduled classroom meetings. Coding the level of interpersonal awareness used during these 32 discussions allowed us to observe the process of transition over an 8-month period.

An existing special education classroom of eight preadolescents, ages 11 and 12, provided the subjects for this study.[1] Once or twice each week the group would gather for class meetings (Jaquette, Parkhurst, & Selman, 1977) to discuss student-initiated suggestions such as "people should stop calling each other names," or "why did Dwight leave school yesterday." A rotating student leader directed the discussion, thereby reducing the need for teacher involvement. The students would first rate the quality of interaction during the week and then discuss and try to resolve the interpersonal problems raised for discussion. Approximately 20 hours of interpersonal problem-solving discussions were tape recorded and transcribed. Individual

responses in the group discussion transcript were assigned a level of interpersonal awareness, using the reflective interview stage criteria (Selman & Jaquette, 1977) and a special procedure for coding social cognition from group discussions (Jaquette, 1978). Thus, each individual received a mean stage for each session. A group interpersonal awareness score was also computed for each session as the average of all responses.

A number of methodological and theoretical issues arise with this kind of research. Because the scoring criteria are based on reflective interview concepts, it may be that fast-paced group discussion would make coding interpersonal awareness impossible. While it is true that the concepts are less well articulated, roughly 30 to 40 codeable concepts were found in each half-hour discussion. Inter-rater reliability was sufficiently high with a correlation coefficient of .93. A second issue is the difficulty in establishing a clear basis for delineating between one score and two. A child may take several passages to articulate a concept or the concept may be only one sentence. Both the long and short concept receive equal scoring weight, yet their contribution to the discussion is different. A third issue is assessing the adults' role in the discussion. Although adult concepts are unscored, their influence on the level of some children's thinking cannot be dismissed. A fourth issue concerns the seriousness of a scoreable remark. Sometimes an otherwise sophisticated child will make a primitive statement in an almost flippant manner; when he is obviously not providing an indication of his social cognitive competencies. Our approach has been to view these naturalistic expressions of interpersonal awareness as a measure of functional development, that is the level at which the child spontaneously functions in resolving real-life issues. If a child provides a flippant, low-level interpersonal concept when an available higher stage concept is obviously more useful for resolving the problem, then we have a better understanding that transitional periods can be marked by low-level oscillation.

While it remains a rough tool, the scoring of naturalistic interpersonal awareness levels provides a useful extension to the cognitive-developmental approach. Table 3 offers some examples of naturalistic coding along with a discussion of scoring criteria (see Table 3). As an example, one of the characteristics of interpersonal awareness at the first level is that the child bases his interpersonal relations on egocentric justifications without consideration for others' viewpoints. During discussion, an immature or impulsive child might justify teasing a classmate with the words, "because I want to do it, that's why!" While the child may be capable of higher level conceptions, that particular response is functionally characteristic of the first level of egocentric interests.

Results and Discussion

As a first step, children's interpersonal awareness capabilities assessed on standardized reflective interviews were compared to their functional level of development during naturalistic problem-solving. Matched-pairs t-tests indicated that their reflective reasoning was higher than their level of naturalistic interpersonal awareness ($t=3.248(7)$, $p<0.01$). As a group, reflective reasoning averaged Stage 2 while naturalistic reasoning was Stage 1(2). These results are not surprising considering the performance factors at work in resolving real-life interpersonal problems within a naturalistic group context. For example, some members became frustrated by the difficulty of the problems and some were swayed by conditions within the group.

To evaluate time-series patterns of transition, both group and individual naturalistic interpersonal awareness scores were plotted over the course of the 32 sessions. Figure 1 presents the time-series scattergram of the group as a whole. A definite pattern of growth in group functioning was observed for two-thirds of the program, followed by an equally definite termination-regression effect.

Curve fitting techniques were used by plotting one regression line for sessions 1 through 22, and another for sessions 22 through 31. The final meeting was not used because the two most disruptive and low functioning members were emotionally unable to participate in that session. The growth curve accounted for 65% of the variance in scores over time, with a correlation coefficient of .81 between level and progression of sessions. The regression-termination effect curve was found to account for 85% of the variance, with a correlation between session and level of .92. A single linear trend accounted for only 17% of the variance, with a correlation of .42. The higher correlations for the two linear growth and termination-regression phases provide convincing evidence for the significance of these trends.

Individual time-series patterns were also examined to determine the generality of the growth and termination-regression phases. Scattergrams for each subject were created representing their scores over time. Curves were fitted, and the slopes and correlations computed for the growth (i.e., meetings 1 to 22) and termination-regression (i.e., meetings 22 to 31) phases for all eight children (see Table 4). Individual slope calculations show that five members reflected the growth and regression phases found in the group as a whole, although two trends included considerable stage oscillation. The other three demonstrated progressive, yet highly unstable, patterns of stage development over the entire program. No individual reflected an overall regressive trend, and all subjects showed progressive patterns during the first two-thirds of the class meetings.

The growth and regression pattern represents transitional characteristics of <u>functional</u> development under real-life conditions. The child's formal competencies may still reflect invariant progression. To test this hypothesis each child was also given a pre-test and post-test standardized interpersonal awareness interview (Selman & Jaquette, 1977). Analyses of these "snap-shots" of interpersonal

development show that every child experienced positive change over the course of the 8 months, averaging approximately one-half stage. The distinction between transitional patterns in reflective and naturalistic interpersonal development would suggest that children progress on two developmental planes, one of formal competency and another of functional performance.

A time-series description of transitional social development patterns also provides a clinical tool for the analysis of social adjustment problems in disturbed children. Figures 2, 3, and 4 present three of the more interesting time-series patterns for members of the problem-solving group. Jane (see Figure 2) is generally reported as a girl of borderline retardation for whom the multitude of educational and therapeutic interventions have had little effect. Her time-series expresses this generally low-level consistency with little indication of fluctuation or growth. Gary (see Figure 3) has been described as a child of exceptional intelligence and social sensitivity, but his difficulty in "controlling anger" has led him to be characterized as a child of "uneven" social and academic production. His time-series scattergram reflects both his high level competencies and his tendency to oscillate in the level of social insight expressed during class meetings. Debbie (see Figure 4) is a child of keen social sensitivity with considerable ego-controls supportive of consistent performance. However, two days after the completion of the school year and the class meeting program, Debbie attempted suicide, leaving a note in which she criticized her own "split personality." The time-series scattergram expresses her consistently high performance. However, there is also evidence of a severe termination-regression effect which was the most pronounced and consistent regressive pattern in the class. One cannot help but speculate if the termination-regression was a barometer of her growing depression and declining self-esteem.

Conclusions

This study employs a time-series analysis of naturalistic developmental functioning over multiple observations to describe characteristics of transition in social development. Cross-sectional, long-term longitudinal and pre-test/post-test designs have often dictated rather than served our understanding of developmental change. The procedures described here provide a model for the microgenetic analysis of developmental transition over short time periods through intensive, repeated observation. Because the assessment is conducted within a naturalistic context, without the reactivity problems of psychological tests or clinical interviews, the number of assessments within a given time frame can be greatly increased. While much work needs to be done to improve the reliability of naturalistic social cognitive assessment, the technique offers researchers the chance of moving from the snap-shot to the motion-picture approach for observing transition.

The time-series patterns of growth and regression in interpersonal awareness are intriguing in light of the general assumption of stage progression. In a cognitive-developmental system where higher patterns are seen to be naturally preferred over less adequate concepts, a regression effect is troubling. Since a time-series analysis of developmental transition is new, the generality of the findings cannot be evaluated. Hopefully, more research in this area will follow to give a more complete picture of transitional change. However, it may be that patterns of progression found in much of the testing or interview data may be a function of the intermittent testing and the formal assessment approach. Temporary regressive phases, within a long-term pattern of development may more accurately reflect the realistic picture of change. One would expect that life events would contribute to short-term stabilizations or regressions within the context of overall progress. Or it may be that regression is characteristic of periods of stress, especially among children whose backgrounds imply high psychological risk. Both educators and clinicians report signs of termination-regression

especially among children with the emotional turmoil of these eight. During the process of year-end termination, internal impulse controls wane and separation anxiety rises. It is hardly surprising to find that during this stress children turn to their less sophisticated problem-solving approaches. Regardless of the generality of these particular findings, a time-series analysis of transition in naturalistic social cognitive development appears to be a promising method for future studies of developmental change.

Footnotes

[1]The author wishes to express his gratitude to Dr. Robert L. Selman for the useful feedback on this research in his capacity as dissertation advisor. Thanks are also due to Mrs. Virginia Parkhurst for her time and commitment in making her classroom at the Manville School of the Judge Baker Guidance Center in Boston available as a research site.

Table 1

Issues in Interpersonal Awareness Stages

I. Individual Concerns

A. Subjectivity: Covert properties of persons such as thoughts, feelings and motives. Conflicts between thoughts or feelings within the person.

B. Self-Reflection: Awareness of the self's ability to observe one's own thoughts and actions. Conceptions such as guilt and self-confidence.

C. Personality: Stable or predictive character traits such as shyness.

D. Personality Change: How and why people change. Concepts such as growing up.

II. Friendship and Peer Group Relation Concerns

A. Formation: Why and how relations are made. The ideal friend or group member.

B. Closeness and Intimacy: The nature of ideal friendships, types of friendship, and intimacy.

C. Group Cohesion: The unity of the group, loyalty and factors which keep the group together.

D. Trust and Reciprocity: The nature of trust between friends, doing things for friends and for each other.

E. Conformity: The range and reasons for following the behavior and beliefs of others.

F. Rule-orientation: The types of rules in groups and their rationale.

G. Decision-making and Organization: How groups set goals, decide on a plan and work together to achieve common ends.

H. Leadership: The qualities of a good leader and the function of leadership in the group.

I. Jealousy and Exclusion: Feelings about intrusion into new or established friendship.

J. Conflict Resolution: How strong,emotionally laden conflicts are resolved between friends.

K. Termination: Why friendships or peer groups break up or a member is excluded from a group.

Table 2

Stages of Interpersonal Awareness

Stage 0 - Egocentric and Physicalistic Connections (approximate age range 2 to 6)

There is a general confusion between physical and psychological qualities of individuals or social relations. Individuals are characterized by simple physicalistic qualities (e.g., "a big boy") or simple evaluative traits (e.g., "a good boy"). Friendship is based on physical proximity or some objective attribute, such as a friend's toy, which the individual desires. Group relations are defined as a series of physicalistic connections and linked activities which are taken to literally hold the group together (e.g., "clubs stay together by holding hands"). Social interdependence is governed by things and activities rather than feelings or interpersonal bonds of collaboration (e.g., one ball for several children). At Stage 0 leadership is seen as undifferentiated physical power over others. There is as of yet no understanding of the possible functions a leader plays in group activities.

WHAT KIND OF LEADER SHOULD A GROUP HAVE?

There should be more than one leader, like two leaders, because if one person wouldn't have a loud enough voice. But if both persons said something at the same time, they would hear (age 6:2)

Leadership means the physical capability of controlling others (e.g., "you get to boss the kids around").

Stage 1 - Physical Reciprocity and Unilateral Interests (age range 4 to 12)

The child is now aware that different persons have unique feelings or intentions from his/her own. Yet he/she is unable to coordinate those different feelings and is not able to consider more than one feeling or thought within any one social context. Friendship is seen as a one-way street where a friend is important because he or she performs specific services for the other (e.g., "they give you candy and invite you over to their house"). Reciprocity is on a physical plane of actions, not intentions or feelings (e.g., "friends play with each other"). Groups are understood to be a collaboration in action (e.g., "there are more kids to have fun with, they can get a whole bunch and have games"), but without convergence of mentalistic attitudes. At Stage 1, the leader is understood to have a specific function as the one who must be the best skilled and know the most. Without the notion of bilateral agreements, leadership remains a series of unilateral, authoritarian commands.

DOES THE LEADER OF A CLUB HAVE TO BE THE BEST PLAYER?

He has to so that when the other people don't know how,he will tell them. If they don't listen to the captain, they won't know what to do.

WHAT ELSE DOES THE CAPTAIN ON A TEAM DO?

The captain can kick somebody off the team anytime he wants, but anybody can quit if they want and the captain would just be on his own team. (age 7:4)

One finds a pervading concern with obedience to the leader until there is sufficient hostility to reject one tyrant in favor of a new but equally authoritarian leader.

Stage 2 - Bilateral coordination (approximate age range 6 to 15)

At Stage 2 the child develops the ability to simultaneously coordinate two perspectives. Individuals are now seen as being able to hold two potentially conflicting feelings toward a particular social experience. Friendships are two-way mental reciprocities where the child is concerned with balancing or matching likes and dislikes. Yet friendship is context-specific, without the underlying shared commonality characteristic of the next stage. Group relations are seen as bilateral feelings of affection extended in an associative chain from one dyad to another to form interlocking two-groups. The child believes that all members must "like each other" for the group to be close. There is recognition of converging thoughts (e.g., "agreements") around concrete issues. However, the child is unable to organize groups as shared communities, common to all members regardless of their specific relations to one another. Leadership is seen as coordinating perspectives among members and between the members and the leader.

IS IT GOOD TO HAVE A LEADER IN A GROUP?
Yah, you have to have a leader. If you don't have a leader, you have someone saying, "I am going first into the house," "I am," "I am," "I am." But the leader keeps organizing it so everybody gets a chance to go in the house and everybody takes turns going in. (age 8:3)

Leadership is based on pragmatic equality (e.g., "everyone should be equal so no one gets bossed around") where the leader is defined as arbitrator and organizer.

Stage 3 - Stability and Mutuality (approximate age range 11 to adulthood)

At Stage 3 the individual views the social world as a total yet relatively simple social system. The individual is seen as a stable personality with potentially conflicting feelings and a pervading character. Friendships are understood to be continuous, where personal problems and feelings can be shared. Friends are "part of" each other, and there is an attempt to work through disputes. The group is perceived as a social whole (e.g., "it's like an egg"), held together as a shared community of common emotions (e.g., "they share the same feelings"), and governed by consensus. The limitations are due to equating community and closeness with homogeneity of values, resulting in too great a concern for uniformity. A leader is seen to marshal group solidarity without imposing his/her will.

DO YOU THINK IT IS GOOD TO HAVE A LEADER IN A GROUP?
Yah, you probably wouldn't be going every which way. He would probably take you someplace as a whole, do something as a whole together, instead of having everyone go his own way.
MIGHT THERE BE SOME PROBLEMS?
That he might be the one to decide everything all the time and the group wouldn't be able to have a group decision. (age 13:1)

Leadership is a matter of creating a sense of unity within the group.

Stage 4 - Pluralistic Self and Social Systems (age range 17 to adulthood)

The individual views the interpersonal world as a set of interdependent systems. Persons are perceived to be multi-dimensional and there is recognition of internal processes such as the unconscious. Friendship is an interdependent relationship which continues to grow through each partner's ability to synthesize feelings of independence and dependence. Groups are viewed from a sociological perspective of multi-faceted systems interacting with individual differences. The collective is seen as a pluralistic community in which individual diversity is not suppressed, but integrated behind common goals (e.g., "individual personalities of people different from each other, contribute to the group and make more of an entity than it was before"). Leadership is conceived as one of many abstract role responsibilities created by the organizational demands of the group.

WHAT KIND OF PERSON MAKES A GOOD LEADER?

He should be somebody who symbolizes the finest in the group. I think they probably selected him as the embodiment of the group spirit, the group's existence. The president would be the light of the group, so that the outside world knows what the leadership is. (age 26)

The individual fulfilling the leadership role is distinguished from the duties and expectations of the role itself.

Table 3

Naturalistic Interpersonal Awareness

An Overview of Scoring Procedures and Samples of Coding

The present work uses a series of cognitive-developmental levels in the child's interpersonal awareness as a hierarchical typology for assessing spontaneously employed social concepts expressed in peer-to-peer interactions. Group discussions of conversations between children depend, in part, on the sophistication of the concepts which members utilize. The Interpersonal Awareness stage sequence (Selman & Jaquette, 1977) provides a developmental rating scale for ordering naturally expressed insights. The level of concepts expressed in group discussion or some other natural setting are referred to as group or individual naturalistic interpersonal awareness (NIA). NIA is distinguished from reflective interpersonal awareness (RIA) which represents the child's level of concept in a one-to-one interview on a hypothetical or distant topic. NIA refers to the level at which the child spontaneously operates to solve and give insights into real-life interpersonal problems. NIA refers to real-life performance, while RIA refers primarily to hypothetical-reflective competence.

Scoring procedures follow the same general rules governing the coding of reflective interviews. A group discussion among children is observed and either tape-recorded or transcribed "live." A transcript of the discussion is made, and the coder reads through the discussion bracketting potentially scoreable concepts. The coder reads through the transcript a second time, assigning one of the interpersonal awareness issues (e.g., leadership, trust, cohesion) which best fits the content of the response or response sequence. To assign a stage score to each bracketted response, the coder refers to the Manual of Interpersonal Awareness (Selman & Jaquette, 1977) and various summary sheets offered in the manual for coding naturalistic interpersonal awareness from group discussions (Jaquette, 1978). Either mixed stage scores (e.g., Stage 2(1)), representing a major and minor level mixture, or pure stage scores (e.g., Stage 2) are given to each scoreable response. Once all discussion sequences have been coded, the scorer transfers all an individual's scores to a coding sheet. An average naturalistic interpersonal awareness score is computed as the mean for all an individual's responses. A group NIA score is also derived based on the average of all responses. A complete description of the coding scheme is given in Jaquette, 1978.

Below are two examples of naturalistic interpersonal awareness, coded and analyzed. The roman numeral and letter subscript represent the interpersonal issue (see Table 1) being discussed, first II_G-Decision-Making and Organization, then II_C-Group Cohesion. The numbers represent the stage coding, from Stage 0 through Stage 4 (see Table 2).

0^{II_G}

Researcher:	Okay, but what happens if the election turns out to be a tie again?
Dwight:	Then we punch them. . . . Then we let them have a fight.
Gary:	Yah, whoever wins is the president.
Dwight:	And I'll help. I'll take Debbie's place.
Researcher:	Have a fight. Now, does anyone have a better suggestion?
Gary:	So, he'll represent Debbie and Daryl will represent himself.
Dwight:	And I'll beat up Gary.

Comment: Dwight provides an idea of how the group should resolve a tie vote by physicalistic intervention ("let them have a fight"). Although Dwight, or any other child, may be capable of higher level conceptions, naturalistic interpersonal awareness is scored on the basis of surface conceptions. Gary enters into the concept with a strange mixture of physicalistic and organizational concepts ("whoever wins is president"). However, since Dwight initiates the concept, only he is assigned a score.

Issue: Two possible issues apply here, Conflict Resolution (II-J) and Decision-making and Organization (II-G). On the side of Conflict Resolution (II-J), the concept implies both dyadic relations and an affective conflict. However, the general context of the discussion is concerned with more procedural matters of selecting a class leader. Hence the issue of Decision-making and Organization (II-G) is assigned.

Stage: Dwight's concept of how class leaders should be selected is a Stage 0 aspect of "physicalistic intervention." It involves no consideration for internal states (e.g., "feelings") nor for the coordination of interests (e.g., "agreements"). The concern for physical intimidation is always scored as Stage 0. Physical intervention ("fights") is seen as the simplest form of decision-making because it involves neither one-way (Stage 1) or two-way (Stage 2) psychological coordination.

2^{II-C}

Teacher: Remember that the principal said that it had to come from all of you. He wasn't talking about the counselors or teachers. He said it was to come from you.
Chuck: Okay.
Teacher: He was talking about a group of 28 or so people.
Chuck: Thirty people. We're going to have to do it.
Gary: Yah, we have to get thirty, at least thirty reasons from everybody.

Comment: Staff reinforces the notion that the students must come to a group decision in order to win back their lost break. Gary invokes the concept of convergent reasons ("at least thirty reasons") for a schoolwide petition among 30 students.

Issue: Staff's stimulus that the group should focus on a cooperative resolution suggests the issue-concept of Group Cohesion (II-C). While the issue-concept could also be scored under Decision-making and Organization, the concept deals primarily with the need for unity witnin the entire group.

Stage: The concept of "reasons" as an area of group cooperation implies a psychological (i.e., "reasons") plane of relations. Any convergence of thoughts or feelings (e.g., "we like the same things") is scored as iminimally Stage 2. Unless higher stage conceptions are also added, the minimal score is the coded level.

Table 4

Individual Slopes and Correlations for NIA during Growth and Regression Phases

Subject	Growth Slope	Growth Correlation	Regression Slope	Regression Correlation
Jane	+.014	.302	+.012	.214
Gary	+.025	.288	-.074	.465
Debbie	+.021	.533	-.085	.863
Jerry	+.030	.459	+.059	.415
Dwight	+.037	.565	-.015	.185
Daryl	+.034	.506	-.073	.424
Billy	+.004	.041	+.052	.822
Chuck	+0.33	.714	-.056	.490
Group	+.046	.810	-.086	.920

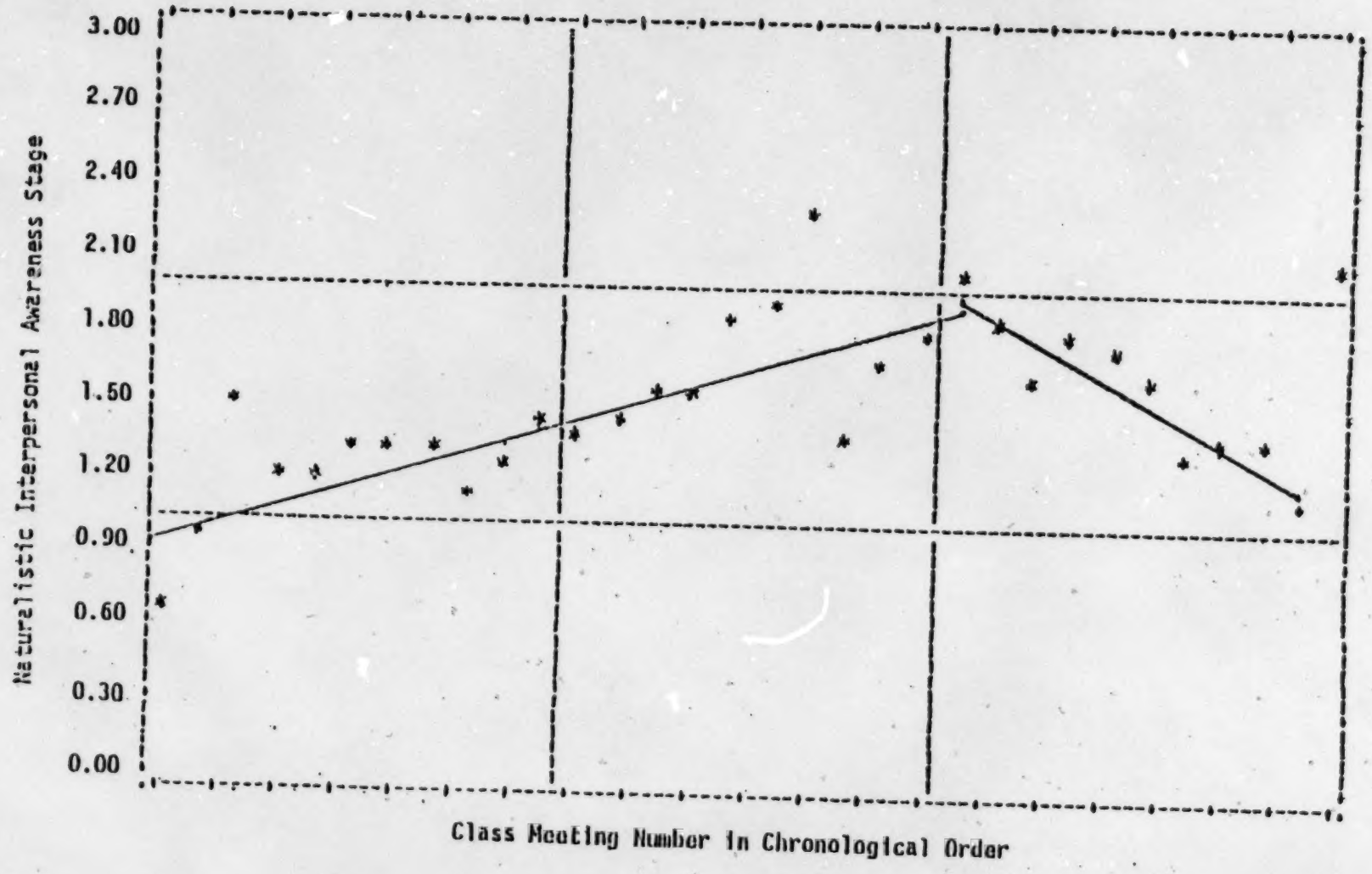

Figure 1: Time-series Scattergram and Curve fitting for Group NIA

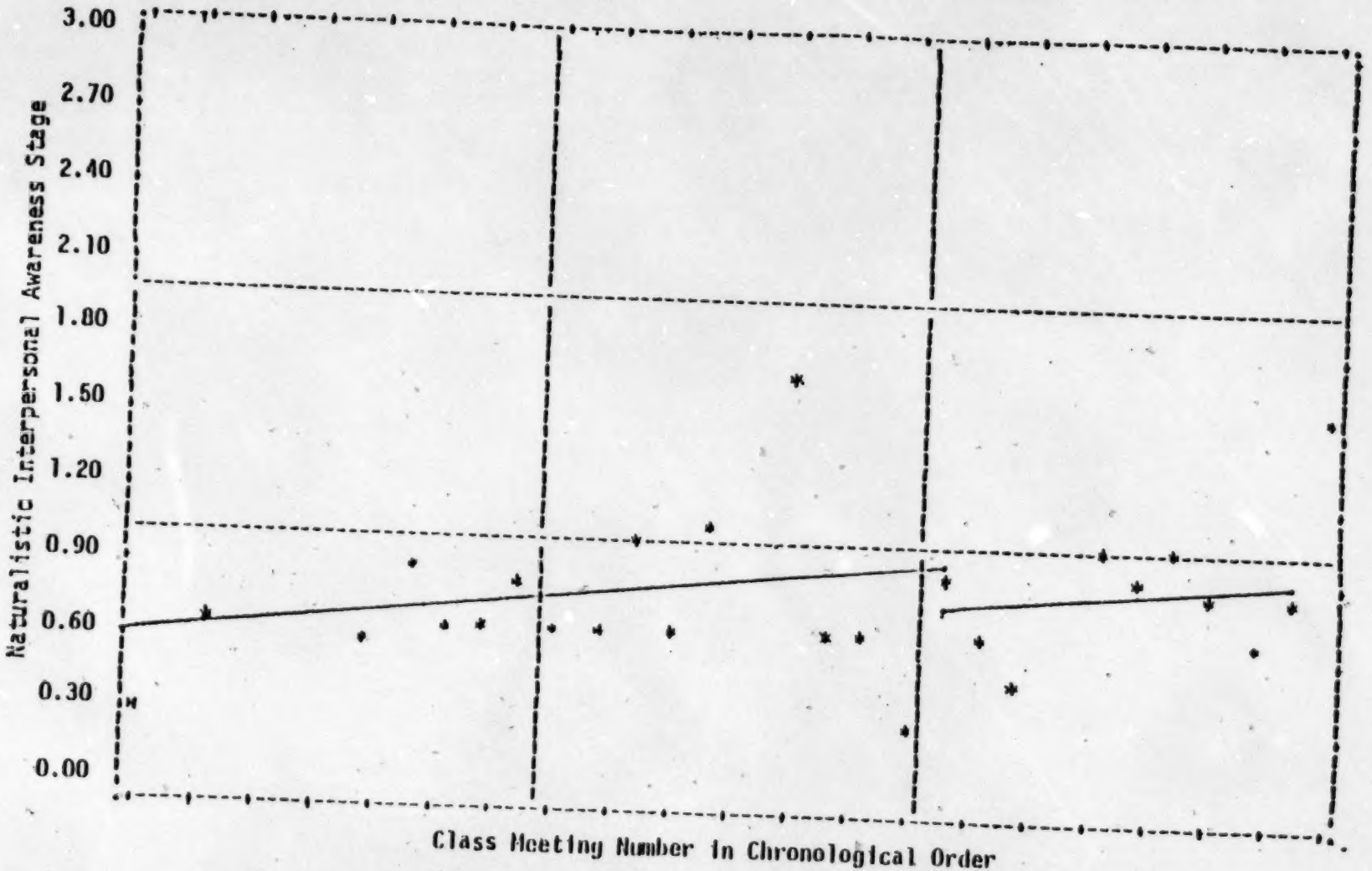

Figure 2 : Time-series Scattergram and Curve Fitting for Jane's NIA

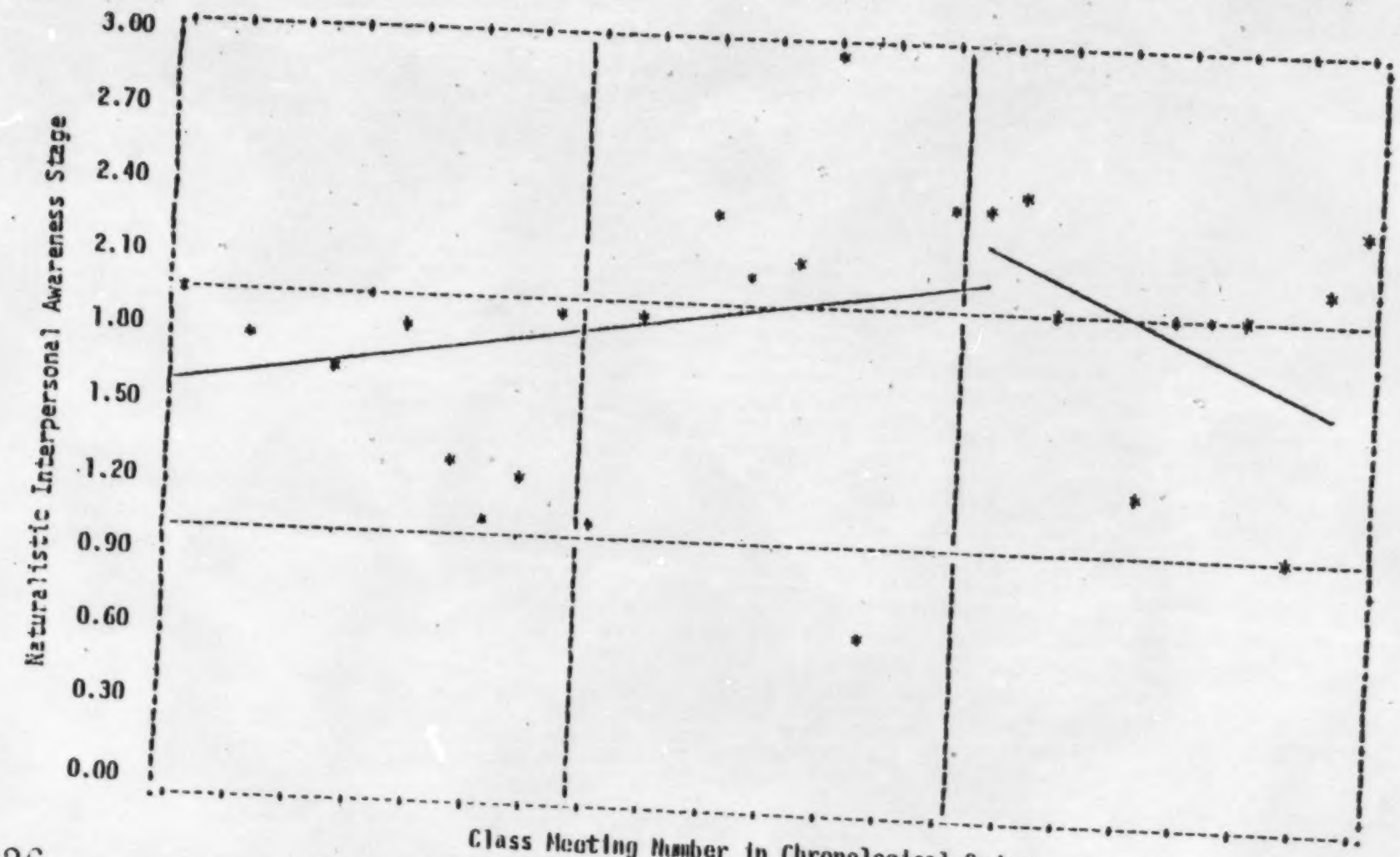

Figure 3: Time-series Scattergram and Curve Fitting for Gary's NIA

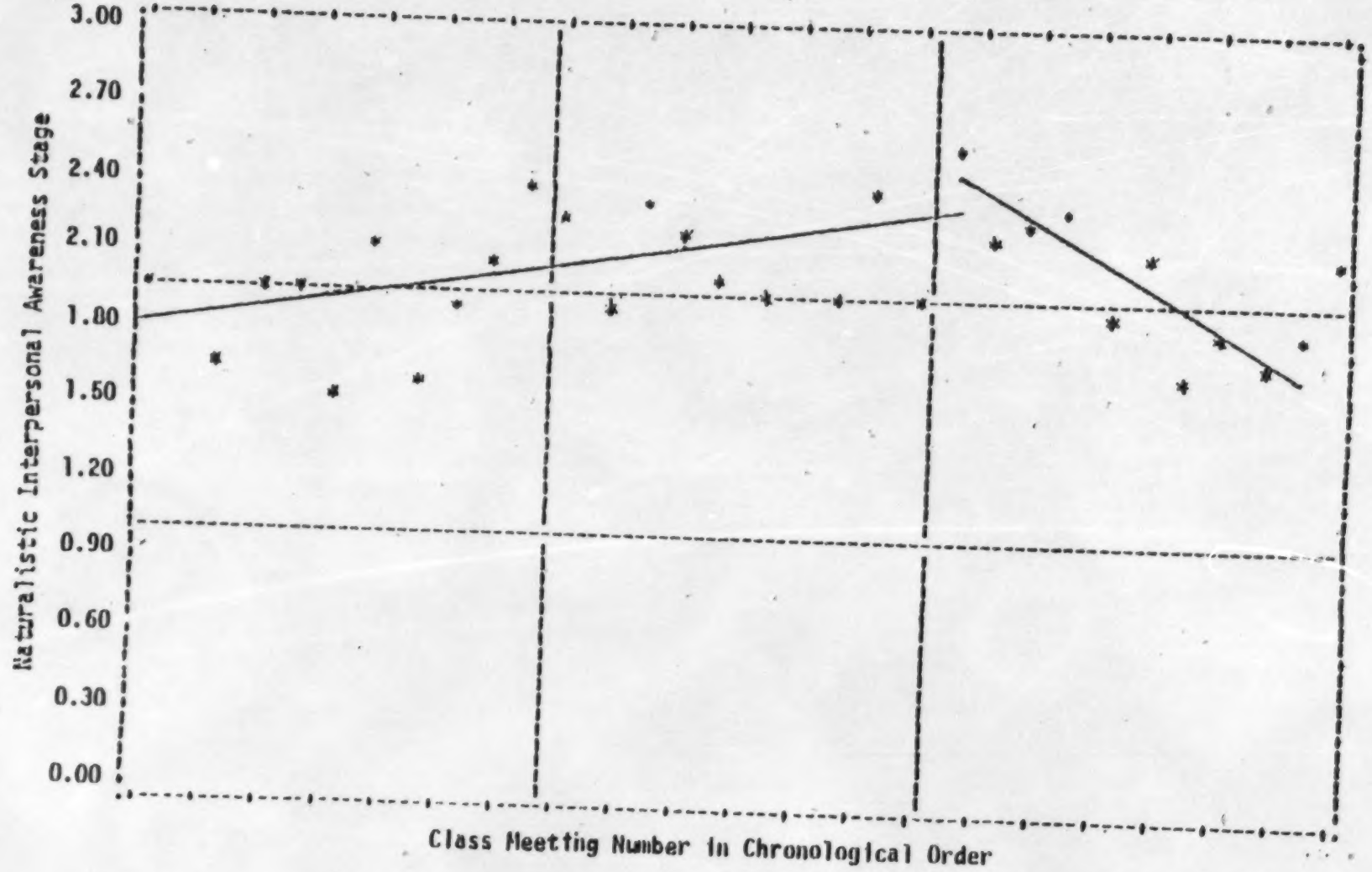

Figure 4: Time-series Scattergram and Curve Fitting for Debbie's NIA

References

Baltes, R. B., Reese, H. W., & Nesselroade, J. R. Life-span developmental psychology: introduction to research methods. Monterey, California: Brooks/Cole Publishing Company, 1977.

Bandura, A., & McDonald, F. The influence of social reinforcement and the behavior of models in shaping children's moral judgment. Journal of Abnormal and Social Psychology, 1963, 67, 527-534.

Blatt, M., & Kohlberg, L. The effects of classroom moral discussion upon children's moral development. Journal of Moral Education, 1975, 4(2), 129-161.

Bornstein, M. R., Bellack, A. B., & Hersen, M. Social-skills training for unassertive children: a multiple-baseline analysis. Journal of Applied Behaviour Analysis, 1977, 10, 183-195.

Brainerd, C., & Allen, T. Experimental inductions of the conservation of "first order" quantitative invariants. Psychological Bulletin, 1971, 75, 128-144.

Brainerd, C. J. Neo-Piagetian training experiments revisited: is there any support for the cognitive-development stage hypothesis? Cognition, 1973, 2(3), 349-370.

Brown, R. Moral reasoning and conduct. In R. Brown & R. Hernstein, Psychology. New York: Harcourt, Brace, Jovanovich, 1975.

Campbell, D. T. From description to experimentation: interpreting trends as quasi-experiments. In C. W. Harris (Ed.), Problems in measuring change. Madison, Wis.: University of Wisconsin Press, 1963.

Campbell, D. T. Reforms as experiments. American Psychologist, 1969, 24, 409-429.

Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally & Company, 1963.

Chassan, J. B. Intensive design in clinical research. Psychosomatics, 1965, 6, 289-294.

Chassan, J. B. Research designs in clinical psychology and psychiatry. New York: Appleton-Century-Crofts, 1967.

Chassan, J. B., & Bellak, L. An introduction to intensive design. In L. Gottschalk & A. Auerbach (eds.), Methods of research in psychotherapy. New York: Appleton-Century-Crofts, 1965.

Cooney, E. W. Social-cognitive development: Applications to intervention and evaluation in the elementary grades. The Counseling Psychologist, 6(4), 1977,6-9.

Damon, W. The social world of the child. San Francisco: Jossey-Bass Publishers, 1977.

Fowler, J. Stages in faith: The structural-developmental approach. In T. Hennessy (Ed.), Values and moral development. New York: Paulist Press. 1976, 173-211.

Furth, H. G. Young children's understanding of society. In H. McGurk (Ed.), Social development. Amsterdam: N. Holland Publishing Co., 1977.

Glass, G. V., Willson, V. L., & Gottman, J. M. Design and analysis of time-series experiments. Boulder, Colo: Laboratory of Educational Research Report, University of Colorado, 1972.

Gottman, J. M. N of one and N of two research in psychotherapy. Psychological Bulletin, 1973, 80, 93-105.

Gottman, J. M., McFall, R. M., & Barnett, J. T. Design and analysis of research using time series. Psychological Bulletin, 1969, 72, 299-306.

Gottman, J. M., & McFall, R. M. Self-monitoring effects in a program for potential high-school dropouts: A time series analysis. Journal of Consulting and Clinical Psychology, 1972, 39, 273-281.

Holstein, C. Development of moral judgment: A longitudinal study of males and females. Child Development, 1976, 47, 51-61.

Holtzman, W. Statistical models for the study of change in the single case. In C. W. Harris (Ed.), Problems in Measuring Change. Madison, Wis.: University of Wisconsin Press, 1963.

Inhelder, B., & Sinclair, H. Learning cognitive structures. In P. H. Mussen, J. Langer, & M. Covington (Eds.), Trends and issues in developmental psychology. New York: Holt, Rinehart & Winston, 1969.

Jaquette, D. Developing conceptions of peer group relations from childhood through adolescence: A developmental social psychological approach. Presented at the Eastern Psychological Association Convention, 1976a.

Jaquette, D. Developmental stages in peer group organization: A cognitive-developmental analysis of peer group concepts in childhood and adolescence. Cambridge, MA.: Harvard University, Qualifying Paper, 1976b.

Jaquette, D., Parkhurst, V., & Selman, R. L. Class meetings and developmental peer therapy: An interpersonal problem-solving approach for remedial social development. Cambridge, MA.: Harvard University, Unpublished Harvard-Judge Baker Social Reasoning Project Report, 1977.

Jaquette, D. S. A longitudinal analysis of interpersonal awareness and real-life problem-solving in a group of disturbed preadolescents: A clinical-developmental analysis. Unpublished doctoral dissertation, Harvard University, 1978.

Kohlberg, L. Stage and sequence: The cognitive-developmental approach to socialization. In D. Goslin (Ed.), Handbook of socialization theory and research. New York: Rand McNally, 1969.

Kohlberg, K., & Kramer, R. Continuities and discontinuities in childhood and adult moral development. Human Development, 1969, 12, 93-120.

Kuhn, D. Short-term longitudinal evidence of the sequentiality of Kohlberg's early stages of moral judgment. Developmental Psychology, 1976, 12(2), 162-166.

Kuhn, D., & Angelev, J. An experimental study of the development of formal operational thought. Child Development, 1976, 47, 697-706.

Levine, C. Role-taking standpoint and adolescent usage of Kohlberg's conventional stages of moral reasoning. Journal of Personality and Social Psychology, 1976, 34(1), 41-46.

Piaget, J. The moral judgment of the child. New York: Free Press, 1965. (First publication, 1932).

Porges, S. W. Ontogenetic comparisons. International Journal of Psychology, 1976, 11(3), 203-214.

Rest, J. R. Longitudinal study of the Defining Issues Test of moral judgment: A strategy for analyzing developmental change. Developmental Psychology, 1975, 11(6), 738-748.

Rest, J., Cooper, D., Coder, R., Masanz, J., & Anderson, D. Judging the important issues in moral dilemmas--an objective measure of development. Developmental Psychology, 1974, 10, 491-501.

Selman, R. L. Taking another's perspective: Role-taking in early childhood. Child Development, 1971, 42, 1721-1734.

Selman, R. L. Toward a structural analysis of developing interpersonal relations concepts: Research with normal and disturbed preadolescent boys. In A. Pick (Ed.), X Annual Minnesota Symposium on Child Psychology. Minneapolis: University of Minnesota Press, 1976.

Selman, R. L., & Jaquette, D. The development of interpersonal awareness: A working draft manual. Unpublished scoring manual, Harvard-Judge Baker Social Reasoning Project, Cambridge, MA., 1977.

Strauss, S. A. A reply to Brainerd. Cognition, 1975, 3, 155-185.

Turiel, E. An experimental test of the sequentiality of developmental stages in the child's moral development. Journal of Personality and Social Psychology, 1966, 3, 611-618.

Turiel, E. Conflict and transition in adolescent moral development. Child Development, 1974, 45, 14-29.

Wohlwill, J. F. The age variable in psychological research. Psychological Review, 1970a, 77, 49-64.

Wohlwill, J. F. Methodology and research strategy in the study of developmental change. In L. R. Goulet & P. B. Baltes (Eds.), Life-span developmental psychology: Research and theory. New York: Academic Press, 1970b.

Wohlwill, J. F. The study of behavioral development. New York: Academic Press, 1973.